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[72] Inventor: Gu Chujun
[54] Invention name: Improvement non- azeotropy actuating medium uses which in the thermodynamic cycle
[57] Abstract
This invention provided a series of included two A kinds of or two A kind of above compositions thermodynamic cycle systems non- azeotropy actuating medium, its characteristic was, could have the great proportion the energy conservation effect, simultaneously was suitable for the refrigeration, the air conditioning, the heat pump, the hot fluid generates electricity four A kind of operating temperatures region, moreover in the practical application only had to the refrigeration, air conditioning, the heat pump, the hot fluid electric power facility to carry on the small modification or not to make the modification the non- azeotropy mix refrigerant. This A kind of refrigerant may conserve energy in the air conditioning system 15-25%, may conserve energy in the refrigeration installment 15-30%, may conserve energy in the ripe pump-unit 15-30%, may raise the energy use factor in the hot fluid electric power facility above 20%.

Claims

1. A series of includes two A kinds of or two A kind of above compositions uses in the thermodynamic cycle system non- azeotropy actuating medium, in basic circulates same under the external condition, compares with a pure actuating medium or a non- azeotropy actuating medium, its advantage is, attracts more heat in the equi pressure evaporation process, puts more heat in the equi pressure condensation process, makes more merit in the expansion process, or makes less merit in the compression process. In other words, in the counter current circulation installment, has higher coefficient of performance COP [COP to define as only discharges the specific energy from the environment (speaking of refrigeration) or only outputs the specific energy (speaking of to heat up) with always inputs ratio of the energy, expression is a constant unit and ratio condition], in the direct cycle installment, has the higher acting efficiency.

2. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.40~0.999
CH₂=CH-CH₃(R1270)	0.001~0.60

And the permission includes the greatest density not to surpass 20% impurity.

3. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.30
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass the 20 % impurity.

4. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂HF₅(R125)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

5. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
6. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂HF₅(R125)	0.001~0.95
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
7. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
8. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95
C₂F₅H(R125)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
9. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.04~0.99
CH₃CFCL₂(R141b)	0.001~0.95
CH₂=CH-CH₃(R1270)	0.001~0.3

And the permission includes the greatest density not to surpass 20% impurity.
 10. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CHF₂Br(R22B1)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 11. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃F₈(R1216)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 12. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃HF₈(R1225)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 13. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃H₈F₈(R1243)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

14. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CHF₂CHF₂(R134)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

15. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CF₃CFH₂(R134a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

16. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂H₃F(R1141)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

17. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂H₂F₂(R1132a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

18. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.50
C₂F₄CLH(R124a)	0.001~0.70
CH₃CCLF₂(R142b)	0.001~0.80

And the permission includes the greatest density not to surpass 20% impurity.
 19. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.99
CH₃CHF₂(R152a)	0.001~0.5
CF₃CFH₂(R134a)	0.001~0.5
C₂F₄CLH(R124a)	0.001~0.6

And the permission includes the greatest density not to surpass 20% impurity.
 20. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.5
CH₃CCLF₂(R142b)	0.001~0.7
C₂H₃FCL₂(R141b)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 21. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.2~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃F₈H(R1225)	0.001~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 22. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃F₅H(R1225)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 23. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.19~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃H₃F₃(R1243)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 24. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.27~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃H₃F₃(R1243)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 25. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.17~0.99
CH₃CHF₂(R152a)	0.001~0.7
CF₂BrH(R22B1)	0.001~0.7
CH₃CCLF₂(R142b)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 26. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.7
CF₂BrH(R22B1)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 27. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.09~0.99
CH₃CHF₂(R152a)	0.001~0.7
CH₃CCLF₂(R142b)	0.001~0.2
C₂F₄CLH₂(R133a)	0.001~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 28. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₄H(R125)	0.01~0.7
CF₃CH₃(R143a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 29. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CHCLF₂(R22)	0.01~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 30. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 31. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6

And the permission includes the greatest density not to surpass 20% impurity.
 32. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 33. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 34. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 35. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 36. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 37. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 38. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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C₂F₅H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 39. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 40. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 41. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 42. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CF₃CH₃(R143a) 0.01~0.9

CH₂=CH-CH₃(R1270) 0.01~0.7

CF₂HCF₂H(R134) 0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
43. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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C₂F₅H(R125) 0.01~0.9

CH₂=CH-CH₃(R1270) 0.01~0.6

CF₂BrH(R22B1) 0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
44. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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C₂F₅H(R125) 0.01~0.9

CH₂=CH-CH₃(R1270) 0.01~0.6

C₃H₈F₃(R1243) 0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
45. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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C₂F₅H(R125) 0.01~0.9

CH₂=CH-CH₃(R1270) 0.01~0.6

C₃F₈H(R1225) 0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
46. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{CF}_2\text{BrH}(\text{R}22\text{B}1)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 47. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{C}_3\text{F}_8\text{H}(\text{R}1225)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 48. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{C}_3\text{H}_8\text{F}_8(\text{R}1243)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 49. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{CF}_2\text{BrH}(\text{R}22\text{B}1)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 50. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{C}_3\text{F}_8\text{H}(\text{R}1225)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 51. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{C}_3\text{H}_8\text{F}_8(\text{R}1243)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 52. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{C}_8\text{F}_8\text{H}(\text{R}1225)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 53. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{CF}_2\text{BrH}(\text{R}22\text{B}1)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 54. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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C₂F₅H(R125) **0.01~0.9**

C₃H₈(R290) **0.01~0.6**

C₃F₈H₃(R1243) **0.01~0.9**

And the permission includes the greatest density not to surpass 20% impurity.
 55. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22) **0.01~0.9**

C₃H₈(R290) **0.01~0.6**

CF₂BrH(R22B1) **0.01~0.9**

And the permission includes the greatest density not to surpass 20% impurity.
 56. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

CHCLF₂(R22) **0.01~0.90**

C₃H₈(R290) **0.01~0.6**

C₃F₅H(R1225) **0.01~0.90**

And the permission includes the greatest density not to surpass 20% impurity.
 57. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

CHCLF₂(R22) **0.01~0.9**

C₃H₈(R290) **0.01~0.6**

C₃H₈F₃(R1243) **0.01~0.9**

And the permission includes the greatest density not to surpass 20% impurity.
 58. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

CHCLF₂(R22) 0.27~0.99

CH₃CHF₂(R152a) 0.001~0.5

CH₃CCLF₂(R142b) 0.001~0.6

CF₃C=CF₂ 0.001~0.7

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CF₃

And the permission includes the greatest density not to surpass 20% impurity.
59. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22) 0.3~0.95

CH₃CHF₂(R152a) 0.01~0.5

CH(CH₃)₃(R600a) 0.01~0.5

CF₃C=CF₂ 0.01~0.6

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CF₃

And the permission includes the greatest density not to surpass 20% impurity.
60. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22) 0.3~0.9

CH₃CHF₂(R152a) 0.01~0.5

CH₃(CH₂)₂CH₃(R600) 0.01~0.5

CF₃C=CF₂ 0.01~0.6

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CF₃

And the permission includes the greatest density not to surpass 20% impurity.
61. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22)	0.3~0.95
CH(CH₃)₂(R600a)	0.01~0.5
CH₃CCLF₂(R142b)	0.01~0.5
CF₃C=CF₂	0.01~0.6

|
CF₃

And the permission includes the greatest density not to surpass 20% impurity.
62. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.95
CH₃(CH₂)₂CH₃(R600)	0.01~0.5
CH₃CCLF₂(R142b)	0.01~0.5
CF₃C=CF₂	0.01~0.6

|
CF₃

And the permission includes the greatest density not to surpass 20% impurity.
63. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃C=CF₂	0.01~0.8

|
CF₃

And the permission includes the greatest density not to surpass 20% impurity.
64. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 65. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 66. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 67. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 68. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 69. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_2\text{HCF}_2(\text{R}134)$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 70. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{CF}_2\text{HCF}_2\text{H}(\text{R}134)$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

 CF_3

And the permission includes the greatest density not to surpass 20% impurity.
 71. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.9
$\text{C}_2\text{F}_4\text{CLH}(\text{R}124\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

 CF_3

And the permission includes the greatest density not to surpass 20% impurity.
 72. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{CF}_2\text{HCF}_2\text{H}(\text{R}134)$	0.01~0.9
$\text{C}_2\text{F}_4\text{CLH}(\text{R}124\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

 CF_3

And the permission includes the greatest density not to surpass 20% impurity.
 73. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{C}_2\text{H}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9
CF_3	

And the permission includes the greatest density not to surpass 20% impurity.
 74. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.6
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9
CF_3	

And the permission includes the greatest density not to surpass 20% impurity..
 75. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.6
$\text{CH}_3(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9
CF_3	

And the permission includes the greatest density not to surpass 20% impurity.
 76A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.6
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 77. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 78. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_2\text{HCF}_2\text{H}(\text{R}134)$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 79. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CH₃CHF₂(R152a)	0.01~0.6
CH₃CCLF₂(R142b)	0.01~0.7
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 80. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CH₃CHF₂(R152a)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 81. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CH₃CCLF₂(R142b)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 82. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CF₃CFH₂(R134a)	0.01~0.9
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 83. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

CHCLF₂(R22)	0.01~0.9
CF₂HCF₂H(R134)	0.01~0.9
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 84. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₈H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 85. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CF₃CH₃(R143a)	0.01~0.7
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

86. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₈H(R125)	0.01~0.9
C₃H₈(R290)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

87. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

并允许含有最大浓度不超过20%的杂质。

And the permission includes the greatest density not to surpass 20% impurity.
88. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
89. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
90. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
91. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
-------------	----------------------

CF₃CH₂(R143a)	0.01~0.9
C₃H₈(R290)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

92. A kind of thermodynamic cycles system hot working installment, its characteristic is, this equipment use meets the right to request 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 constitute non- azeotropy actuating medium.

93. A kind of thermodynamic cycles system work air-conditioning system, its characteristic is, this equipment use requests 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 according to the right, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 constitute non- azeotropy actuating medium.

94. A kind of thermodynamic cycles system work refrigeration system, its characteristic is, this equipment use requests 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 according to the right, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 constitute non- azeotropy actuating medium.

95. A kind of thermodynamic cycles system work heating system, its characteristic is, this equipment use requests 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 according to the right, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 constitute non- azeotropy actuating medium.

96. A kind of thermodynamic cycles system work hot fluid electric power facility, its characteristic is, this equipment use requests 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 according to the right,

22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, Di, Di, 87, 88, 89, 90, 91 constitute non- azeotropy actuating medium.

Description

Improvement non- azeotropy actuating medium uses which in the thermodynamic cycle This invention involves to the thermodynamic cycle system related actuating medium, specially, it involves to a kind of non- azeotropy, the useful mixture, for example, in the counter current circulation installment, has higher coefficient of performance COP [COP to define as only discharges the specific energy from the environment (speaking of refrigeration) or only outputs the specific energy (speaking of to heat up) with always inputs ratio of the energy, expression is a constant unit and ratio condition], in the direct cycle installment, has the higher acting efficiency.

At present in the commercial system industry, uses in the thermodynamic cycle is can hit is making the medium is usually some pure compositions, or is the azeotropy and the non- azeotropy actuating medium.

Many such mixtures already announced in the world, for example, following reference:

1. American patent 2, 641, 580, the topic is “1, 1 - four fluorine second grades burns with a chlorine five fluorine ethane azeotropy refrigerant composition”, inventor: Lewis, patent authorization date:On June 9, 1953.
2. American patent 3, 203, 194, the topic is “the refrigeration compression process” the inventor: Fuddure patent authorization date:On August 31, 1965.
3. American patent 4, 303, 536, the topic is “contains a chlorine four fluorine methane non- azeotropy refrigerant composition and the application method”, inventor:Orfeo and so on, patent authorization date:On December 1, 1981 o
4. American patent 4, 603, 002, the topic is “uses in freezing and on the storage product method and the refrigeration medium” the inventor: Nikolsky and so on, patent authorization date:1 brocade 6 years on July 29 o
5. Japanese patent 52-70466, the topic is “the low boiling point refrigerant composition” the inventor:Kokai, in 1977 published in DaKogyoKKo
6. “System Ling and air conditioning” author: B. C. Langly, in 1982 second edition.
7. French patent 2130556 (VEB Monsator Haushait grossgeratekombinat).
- 8, French patent 2177785 (VEB Monsator tiahsuaH rg field sgerateko dish binat).
9. French patent 2, 607, 144 (Institute Francaise du Petrole).
10. “Fluorine chlorine carbon and its substitute “author: M. F. Bouzianis (Arthur D. Little, in 1988).
11. “Later the market automobile air conditioning will use refrigeration mixture gas “author:D. J. Bateman and so on, SAE series technology paper ” 900216 (SAE

international conference and an exposition Detroit, Michigan, on February 26, 1990 – on March 2.

12. “ASHRAE heats, ventilates, air conditioning and the refrigeration terminology assembly” second edition (US heats, refrigeration and air conditioning engineer association, in 1991).

In basic circulates same under the external condition, compares with a pure actuating medium or an azeotropy actuating medium, non- azeotrope (if is outstanding) is such type of has the advantage the actuating medium, its advantage is, attracts more heat in the equi pressure evaporation process, puts more heat in the equi pressure condensation process, makes more merit or in the expansion process makes less merit in the compression process, in other words, in the counter current circulation installment, has higher coefficient of performance cop, in the direct cycle installment, has the higher acting efficiency.

But each type of system Ling agent all has the certain limitation, regarding the different vaporization temperature region and the condensing temperature region, not impossible to have the type of to mix the refrigerant to be able to be also suitable, therefore must seek many A kinds of refrigerant, moreover, the refrigerant which introduced first in the patent uses in these in system Ling and the air conditioning equipment, energy conservation effect all not very big, is generally 5%-10%. Moreover, these often request in the first refrigerant to the original refrigeration and the air conditioning equipment makes many place transformations, this will give the practical application and the promotion brings the difficulty.

This invention provided a series of included two A kinds of or two A kind of above compositions thermodynamic cycle systems non- azeotropy actuating medium, its characteristic was, could have the great proportion the energy conservation effect, simultaneously was suitable for the refrigeration, the air conditioning, the heat pump, the hot fluid generates electricity four A kind of operating temperatures region, moreover in the practical application only had to system Ling, air conditioning, the heat pump, the hot fluid electric power facility to carry on the small modification or not to make the modification the non- azeotropy stick to gather the refrigerant. This system Ling agent may conserve energy in the air conditioning system 15-25%, may conserve energy in the refrigeration installment 15-30%. May conserve energy in the heat pump installment 15-30%, may raise the energy use factor in the hot fluid electric power facility above 20%.

Figure 1 expressed the type of uses this invention the non- azeotropy actuating medium refrigeration unit.

Figure 2 expressed the type of use figure 1 that A kind of refrigeration unit makes air conditioning system most main module installment description.

Refers to refrigeration unit which figure 1 demonstrated, in this invention actuating medium circulates in a following circulatory system, in the circulation direction like figure 15 arrows refer the direction, the fluid 20 presses 15 direction by the compressor to flow to condenser 30, then is the throttle valve 40, then is evaporator 50. Then flows the compressor 20, the condenser 30 and a heat interchanger is connected, and transmits through this heat interchanger the quantity of heat for other equipment, for instance cold water tank 60. The evaporator 50 the control space which assigns to one supplies coldly, by or it 70 supplies the cold quantity except this space quantity of heat through a hot junction to low temperature fluid.

See also an air-conditioning system which the figure 2 bases present the invention makes, including a refrigeration unit 140 (demonstration in figure 1) and a fluid streamline 100, this class money representative provides the fresh air, circulates again including one the control loop 105, provides the air by 105 return routes which the air and 110 provide in the mixer in 120 to carry on the mix, passes through a 130 center ventilator and the filter, then to is similar a refrigeration which shows in figure 1 installs 140. Then arrives humidifier 150 again. Then passes to a divergence installs 170, 180, 170th, 180 split systems all separately supply each one cold air user 190.

This invention actuating medium may use in the heat engineering the compression, the condensation, inflates and evaporates in the circulatory system, like heat pump installment, refrigeration installment, air conditioning system and hot fluid electric power facility, but does not need these systems to make the expensive revision.

The impurity mentioned which in this invention is refers besides assigns the composition matter any matter and the mixture.

May use in this invention including two A kinds of or two A kind of above compositions, uses in the thermodynamic system non- azeotropy actuating medium concrete constitution being as follows:

1. A kind of non- azeotropes actuating media, its composition and the concentration is as follows: Weight

Composition	Weight concentration
CHClF₂(R22)	0.40~0.999
CH₂=CH-CH₃(R1270)	0.001~0.60

And the permission includes the greatest density not to surpass 20% impurity.

2. A kind of non- azeotropes actuating media, its composition and the concentration is as follows: Weight

Composition	Weight concentration
-------------	----------------------

CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.30
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 3. A kind of non-azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂HF₅(R125)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 4. A kind of non-azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 5. A kind of non-azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂HF₅(R125)	0.001~0.95
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 6. A kind of non-azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95
CH₂F₂(R32)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 7. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CH₃CF₃(R143a)	0.001~0.95
C₂F₅H(R125)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 8. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₃CFCL₂(R141b)	0.001~0.95
CH₂=CH-CH₃(R1270)	0.001~0.3

And the permission includes the greatest density not to surpass 20% impurity.
 9. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CHF₂Br(R22B1)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 10. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
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CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃F₈(R1216)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 11. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃HF₈(R1225)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 12. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₃H₈F₈(R1243)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 13. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CHF₂CHF₂(R134)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

14. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
CF₃CFH₂(R134a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

15. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂H₃F(R1141)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

16. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.04~0.99
CH₂=CH-CH₃(R1270)	0.001~0.3
C₂H₂F₂(R1132a)	0.001~0.95

And the permission includes the greatest density not to surpass 20% impurity.

17. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.50
C₂F₄CLH(R124a)	0.001~0.70
CH₃CCLF₂(R142b)	0.001~0.80

And the permission includes the greatest density not to surpass 20% impurity.

18. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.99
CH₃CHF₂(R152a)	0.001~0.5
CF₃CFH₂(R134a)	0.001~0.5
C₂F₄CLH(R124a)	0.001~0.6

And the permission includes the greatest density not to surpass 20% impurity.

19. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.5
CH₃CCLF₂(R142b)	0.001~0.7
C₂H₃FCL₂(R141b)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 20. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.2~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃F₈H(R1225)	0.001~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 21. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃F₈H(R1225)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 22. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.19~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃H₈F₈(R1243)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.
 23. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.27~0.99
CH₃CHF₂(R152a)	0.001~0.6
C₃H₃F₃(R1243)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.7

And the permission includes the greatest density not to surpass 20% impurity.

24. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.17~0.99
CH₃CHF₂(R152a)	0.001~0.7
CF₂BrH(R22B1)	0.001~0.7
CH₃CCLF₂(R142b)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.

26. A kind of non- azeotropes actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.15~0.99
CH₃CHF₂(R152a)	0.001~0.7
CF₂BrH(R22B1)	0.001~0.7
C₂F₄CLH(R124a)	0.001~0.8

And the permission includes the greatest density not to surpass 20% impurity.

26. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.09~0.99
CH₃CHF₂(R152a)	0.001~0.7
CH₃CCLF₂(R142b)	0.001~0.2
C₂F₃CLH₂(R133a)	0.001~0.9

And the permission includes the greatest density not to surpass 20% impurity.

27. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.7
CF₃CH₃(R143a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 28. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CHCLF₂(R22)	0.01~0.95

And the permission includes the greatest density not to surpass 20% impurity.
 29. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 30. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6

And the permission includes the greatest density not to surpass 20% impurity.
 31. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7

And the permission includes the greatest density not to surpass 20% impurity.
 32 A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 33. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₆H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 34 A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₆H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 35. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

CF₂H₂(R32)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

36. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₂H₂(R32)	0.01~0.9
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

37. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CF₃CH₃(R143a)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₂HCF₂H(R134)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity..

38. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.7
CF₃CFH₂(R134a)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

39 A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

$C_2F_5H(R125)$	0.01~0.9
$CH_2=CH-CH_3(R1270)$	0.01~0.7
$CF_2HCF_2H(R134)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 40. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$CF_3CH_3(R143a)$	0.01~0.9
$CH_2=CH-CH_3(R1270)$	0.01~0.7
$CF_3CFH_2(R134a)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 41. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$CF_3CH_3(R143a)$	0.01~0.9
$CH_2=CH-CH_3(R1270)$	0.01~0.7
$CF_2HCF_2H(R134)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 42. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$C_2F_5H(R125)$	0.01~0.9
$CH_2=CH-CH_3(R1270)$	0.01~0.6
$CF_2BrH(R22B1)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 43. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$C_2F_5H(R125)$	0.01~0.9
$CH_2=CH-CH_3(R1270)$	0.01~0.6
$C_3H_3F_3(R1243)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

44. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
<chem>C2F5H</chem> (R125)	0.01~0.9
<chem>CH2=CH-CH3</chem> (R1270)	0.01~0.6
<chem>C3F8H</chem> (R1225)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

45. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
<chem>CF3CH3</chem> (R143a)	0.01~0.9
<chem>CH2=CH-CH3</chem> (R1270)	0.01~0.6
<chem>CF2BrH</chem> (R22B1)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

46. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
<chem>CF3CH3</chem> (R143a)	0.01~0.9
<chem>CH2=CH-CH3</chem> (R1270)	0.01~0.6
<chem>C3F8H</chem> (R1225)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

47. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
<chem>CF3CH3</chem> (R143a)	0.01~0.9
<chem>CH2=CH-CH3</chem> (R1270)	0.01~0.6
<chem>C3H3F3</chem> (R1243)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

48. A kind of non- azeotropes actuating media, its various compositions and Weight concentration following = composition weight male

CF₃CH₃(R143a)	0.01~0.9
C₃H₈(R290)	0.01~0.6
CF₂BrH(R22B1)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 49. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₃CH₃(R143a)	0.01~0.9
C₃H₈(R290)	0.01~0.6
C₃F₈H(R1225)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 50. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CF₃CH₃(R143a)	0.01~0.9
C₃H₈(R290)	0.01~0.6
C₃H₈F₈(R1243)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 51. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₆H(R125)	0.01~0.9
C₃H₈(R290)	0.01~0.6
C₃F₈H(R1225)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 52. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₆H(R125)	0.01~0.9
C₃H₈(R290)	0.01~0.6
CF₂BrH(R22B1)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 53. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
C₃H₈(R290)	0.01~0.6
C₃F₈H₃(R1243)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

55. A kind of non- azeotropies actuating media, its various compositions and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
C₃H₈(R290)	0.01~0.6
CF₂BrH(R22B1)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

55. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.90
C₃H₈(R290)	0.01~0.6
C₃F₈H(R1225)	0.01~0.90

And the permission includes the greatest density not to surpass 20% impurity.

56. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
C₃H₈(R290)	0.01~0.6
C₃H₈F₈(R1243)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.

57. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.27~0.99
CH₃CHF₂(R152a)	0.001~0.5
CH₃CCLF₂(R142b)	0.001~0.6
CF₃C=CF₂	0.001~0.7
CF₃	

And the permission includes the greatest density not to surpass 20% impurity.
 58. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.95
CH₃CHF₂(R152a)	0.01~0.5
CH(CH₃)₂(R600a)	0.01~0.5
CF₃C=CF₂	0.01~0.6
CF₃	

And the permission includes the greatest density not to surpass 20% impurity.
 59. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.9
CH₃CHF₂(R152a)	0.01~0.5
CH₃(CH₂)₂CH₃(R600)	0.01~0.5
CF₃C=CF₂	0.01~0.6
CF₃	

And the permission includes the greatest density not to surpass 20% impurity.
 60. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

CHCLF₂(R22)	0.3~0.95
CH(CH₃)₃(R600a)	0.01~0.5
CH₃CCLF₂(R142b)	0.01~0.5
CF₃C=CF₂	0.01~0.6

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

61. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.3~0.95
CH₃(CH₂)₂CH₃(R600)	0.01~0.5
CH₃CCLF₂(R142b)	0.01~0.5
CF₃C=CF₂	0.01~0.6

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

62. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
C₂F₅H(R125)	0.01~0.9
CH₂=CH-CH₃(R1270)	0.01~0.6
CF₃C=CF₂	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

63. A kind of non- azeotropies actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration

$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

64. A kind of non- azeotropies actuating media, its composition and the

Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

65. A kind of non- azeotropies actuating media, its composition and the

Weight concentration is as follows:

Composition	Weight concentration :
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.

66. A kind of non- azeotropies actuating media, its composition and the

Weight concentration is as follows:

Composition	Weight concentration
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$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 67. A kind of non- azeotropes actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600\text{a})$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃:

And the permission includes the greatest density not to surpass 20% impurity.
 68. A kind of non- azeotropes actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_2\text{HCF}_2(\text{R}134)$	0.01~0.9
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.6
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 69. A kind of non- azeotropes actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration

CF₂HCF₂H(R134)	0.01~0.9
CH(CH₃)₂(R600a)	0.01~0.6
CF₃C=CF₂	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 70. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CF₃CFH₂(R134a)	0.01~0.9
C₂F₄CLH(R124a)	0.01~0.6
CF₃C=CF₂	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 71. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CF₂HCF₂H(R134)	0.01~0.9
C₂F₄CLH(R124a)	0.01~0.6
CF₃C=CF₂	0.01~0.8

|

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
 72. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
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$\text{C}_2\text{F}_5\text{H}$ (R125)	0.01~0.9
$\text{C}_2\text{H}_2=\text{CH}-\text{CH}_3$ (R1270)	0.01~0.6
CH_3CHF_2 (R152a)	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9

1

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
73. A kind of non-azeotropes actuating media, its composition and the
Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.6
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9

1

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
74. A kind of non- azeotropies actuating media, its composition and the
Weight concentration is as follows:

Composition	Weight concentration
C_2F_6H (R125)	0.01~0.9
CF_3CH_3 (R143a)	0.01~0.6
$CH_3(CH_3)_2$ (R600a)	0.01~0.7
$CF_3C=CF_2$	0.01~0.9

1

CF₃

And the permission includes the greatest density not to surpass 20% impurity.
75. A kind of non- azeotropies actuating media, its composition and the
Weight concentration is as follows:

Composition Weight concentration :

$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.6
$\text{CH}_3(\text{CH}_2)_2\text{CH}_3(\text{R}600)$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9
CF_3	

And the permission includes the greatest density not to surpass 20% impurity.
 76. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_3\text{CFH}_2(\text{R}134\text{a})$	0.01~0.7
$\text{CF}_3\text{C}=\text{CF}_2$	0.01~0.9
CF_3	

And the permission includes the greatest density not to surpass 20% impurity.
 77A kind of non- azeotropies actuating media, its composition and the Weight
 concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143\text{a})$	0.01~0.9
$\text{CH}_3\text{CHF}_2(\text{R}152\text{a})$	0.01~0.6
$\text{CF}_2\text{HCF}_2\text{H}(\text{R}134)$	0.01~0.7

$\text{CF}_3\text{C}=\text{CF}_2$ 0.01~0.8

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 CF_3

And the permission includes the greatest density not to surpass 20% impurity.
 78. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition Weight concentration

CHCLF₂(R22)	0.01~0.9
CH₃CHF₂(R152a)	0.01~0.6
CH₃CCLF₂(R142b)	0.01~0.7
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 79. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CH₃CHF₂(R152a)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 80. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CH₃CCLF₂(R142b)	0.01~0.6
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 81. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CF₃CFH₂(R134a)	0.01~0.9
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 82. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
CHCLF₂(R22)	0.01~0.9
CF₂HCF₂H(R134)	0.01~0.9
CF₃CF₂CF₂CF₃(R3110)	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 83. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 84. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{CF}_3\text{CH}_3(\text{R}143a)$	0.01~0.7
$\text{CH}_2=\text{CH}-\text{CH}_3(\text{R}1270)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 85. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{C}_3\text{H}_8(\text{R}290)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 86. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration
$\text{C}_2\text{F}_5\text{H}(\text{R}125)$	0.01~0.9
$\text{CH}(\text{CH}_3)_3(\text{R}600a)$	0.01~0.6
$\text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_3(\text{R}3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 87. A kind of non- azeotropies actuating media, its composition and the
 Weight concentration is as follows:

Composition	Weight concentration

$C_2F_5H(R125)$	0.01~0.9
$CH_3(CH_2)_2CH_3(R600)$	0.01~0.6
$CF_3CF_2CF_2CF_3(R3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 88. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$CF_3CH_3(R143a)$	0.01~0.9
$CH(CH_3)_3(R600a)$	0.01~0.6
$CF_3CF_2CF_2CF_3(R3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 89. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$CF_3CH_3(R143a)$	0.01~0.9
$CH_3(CH_2)_2CH_3(R600)$	0.01~0.6
$CF_3CF_2CF_2CF_3(R3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 90. A kind of non- azeotropes actuating media, its composition and the Weight concentration is as follows:

Composition	Weight concentration
$CF_3CH_3(R143a)$	0.01~0.9
$C_3H_8(R290)$	0.01~0.6
$CF_3CF_2CF_2CF_3(R3110)$	0.01~0.9

And the permission includes the greatest density not to surpass 20% impurity.
 This invention subject also includes:

The type of thermodynamic cycle system hot working installment, its characteristic is, this equipment uses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 8a, 87, 88, 89, 90, constitutes non- azeotropy actuating medium.

The type of thermodynamic cycle system work air-conditioning system, its characteristic is, this equipment uses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 constitute non- azeotropy actuating medium.

The type of thermodynamic cycle system work refrigeration system, its characteristic is, this equipment uses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 constitute non- azeotropy actuating medium.

The type of thermodynamic cycle system work refrigeration system, its characteristic is, this equipment uses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 constitute non- azeotropy actuating medium.

The type of thermodynamic cycle system work refrigeration system, its characteristic is, this equipment uses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90 constitute non- azeotropy actuating medium.

Description attached figure

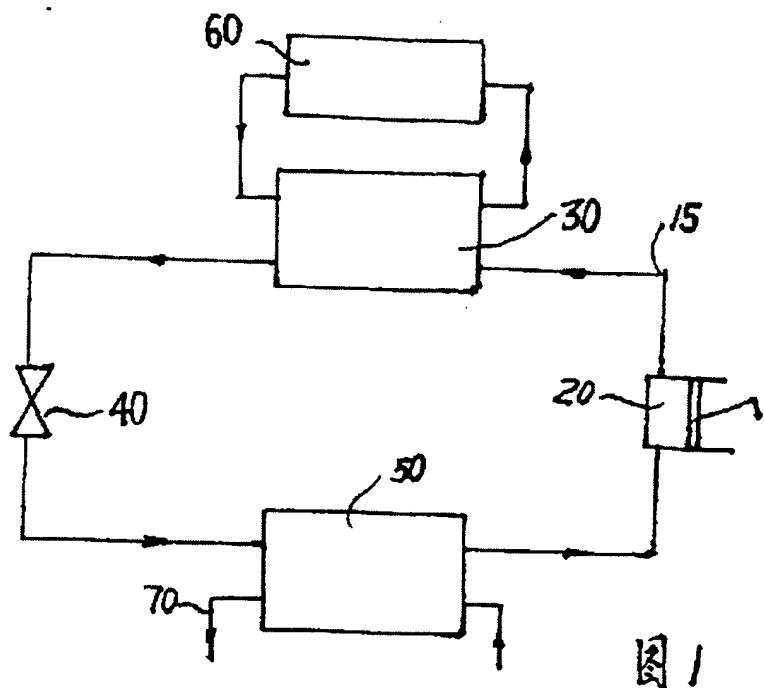


Figure 1

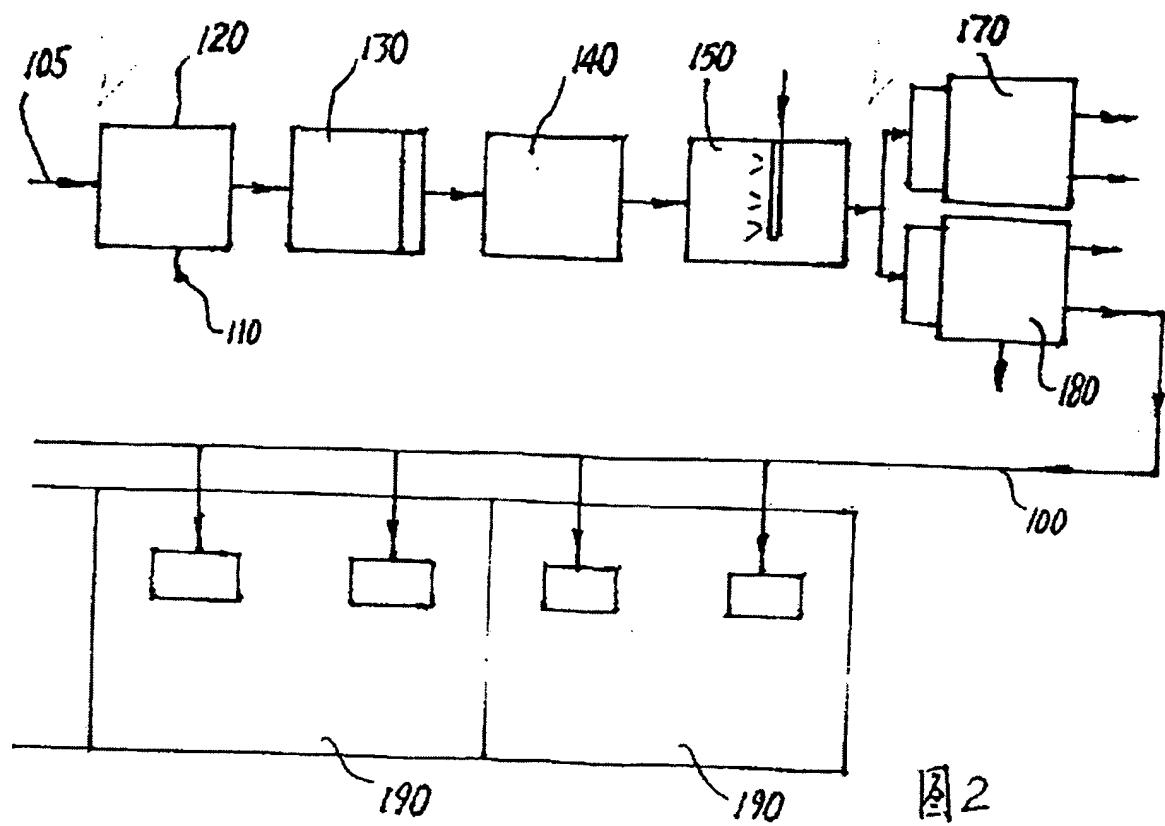


Figure 2